



Application No. 09/737,968
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Docket No.: 1982-0161P

AMENDMENTS TO THE CLAIMS

Claim 1. (Currently Amended)

A device for forming an image of a subject, the device comprising:

(a) a focusing lens having an optical axis, with the focusing lens being movable along the optical axis for focusing an image of the subject at an imaging position;

(b) a motor connected to the focusing lens, operable for causing the focusing lens to move along the optical axis;

(c) an image sensor having a sensing surface located at the imaging position, which produces electronic information in accordance with images on the sensing surface; and

(d) a central processing unit electronically connected to the image sensor and receiving electronic information from the image sensor, and electronically connected to and controlling the motor, the central processing unit having a memory and program logic, in which the program logic in accordance with predetermined conditions stored in the memory, the predetermined conditions having been set in advance, determines a start point of a search and one of two directions of search from the start point for an in-focus position of an image of the subject on the imaging position, and controls operation of the motor to move the focusing lens to the start point, and to move the focusing lens from the start point in the determined direction of search until an in-focus position is reached based on analyzing electronic information received from the image sensor,

wherein the predetermined conditions are photographic modes including at least a close-up mode, a landscape mode and a night scene mode.

Claim 2. (Original)

The device of claim 1, wherein the focusing lens is movable forward and back along the optical axis, and the program logic determines, in accordance with the predetermined conditions, to search one of forward and back from the start point along the optical axis for an in-focus position.

Claim 3. (Original)

The device of claim 1, wherein the program logic determines, in accordance with the predetermined conditions, a range for the search.

Claim 4. (Original)

The device of claim 1, wherein the program logic determines, in accordance with the predetermined conditions, a method of determination of an in-focus position.

Claim 5. (Original)

The device of claim 1, wherein, when the search for an in-focus position is unsuccessful, the program logic, in accordance with the predetermined conditions, controls the motor to move the focusing lens to a focusing position stored in advance in the memory.

Claim 6. (Currently Amended)

The device of claim 1, wherein the predetermined conditions are photographic modes including at least one of a portrait mode, a close-up mode, a landscape mode and a night scene mode.

Claim 7. (Original)

The device of claim 6, wherein an in-focus position is predetermined to be at one of a close position side and a far position side depending on the photographic mode, and, if the in-focus position is predetermined to be at the close position side, the start point is the close position and the search proceeds toward the far position and, if the in-focus position is predetermined to be at the far position side, the start point is the far position and the search proceeds toward the close position.

Claim 8. (Currently Amended)

A focusing method for use in an imaging device for focusing an image of a subject at an imaging position using a focusing lens movable along an optical axis, the method comprising the steps of:

- (a) determining, in accordance with predetermined conditions, the predetermined conditions having been set in advance, a start point from which to move the focusing lens along the optical axis in searching for an in-focus position and one of two directions of search from the start point;
- (b) positioning the focusing lens at the start point; and

(c) moving the focusing lens along the optical axis from the start point in the determined direction of search, searching for an in-focus position,

wherein the predetermined conditions are photographic modes including at least a close-up mode, a landscape mode and a night scene mode.

Claim 9. (Original)

The focusing method of claim 8, further comprising determining, in accordance with the predetermined conditions, a direction to search from the start point along the optical axis for an in-focus position.

Claim 10. (Original)

The focusing method of claim 8, further comprising determining, in accordance with the predetermined conditions, a range for the search.

Claim 11. (Original)

The focusing method of claim 8, further comprising determining, in accordance with the predetermined conditions, a method for deciding whether an in-focus position has been reached.

Claim 12. (Original)

The focusing method of claim 8, wherein, if the search for an in-focus position is unsuccessful, the focusing lens is moved, in accordance with the predetermined conditions, to a default focusing position.

Claim 13. (Currently Amended)

The focusing method of claim 8, wherein the predetermined conditions are photographic modes including at least one of a portrait mode, a close-up mode, a landscape mode and a night scene mode.

Claim 14. (Original)

The focusing method of claim 13, wherein an in-focus position is predetermined to be at one of a close position side and a far position side depending on the photographic mode, and, if the in-focus position is predetermined to be at the close position side, the start point is the close position and the search proceeds toward the far position and, if the in-focus position is predetermined to be at the far position side, the start point is the far position and the search proceeds toward the close position.

Claim 15. (Currently Amended)

A computer program product for use in focusing an image of a subject at an imaging position in an imaging device having a computer, wherein the computer controls movement of a focusing lens along an optical axis, the product comprising a recording medium having recorded thereon electronically readable information which, when used to program the computer, causes the computer to:

(a) determine, in accordance with predetermined conditions, the predetermined conditions having been set in advance, a start point from which to move the focusing lens along

the optical axis in searching for an in-focus position and one of two directions of search from the start point;

(b) position the focusing lens at the start point; and

(c) move the focusing lens along the optical axis from the start point in the determined direction of search, searching for an in-focus position,

wherein the predetermined conditions are photographic modes including at least a close-up mode, a landscape mode and a night scene mode.

Claim 16. (Original)

The computer program product of claim 15, wherein the electronically readable information, when used to program the computer, further causes the computer to determine, in accordance with the predetermined conditions, a direction to search from the start point along the optical axis for an in-focus position.

Claim 17. (Original)

The computer program product of claim 15, wherein the electronically readable information, when used to program the computer, further causes the computer to determine, in accordance with the predetermined conditions, a range for the search.

Claim 18. (Original)

The computer program product of claim 15, wherein the electronically readable information, when used to program the computer, further causes the computer to determine, in

accordance with the predetermined conditions, a method for deciding whether an in-focus position has been reached.

Claim 19. (Original)

The computer program product of claim 15, wherein the electronically readable information, when used to program the computer, if the search for an in-focus position is unsuccessful, includes causing the computer, in accordance with the predetermined conditions, to move the focusing lens to a default focusing position.

Claim 20. (Currently Amended)

The computer program product of claim 15, wherein the predetermined conditions are photographic modes including at least one of a portrait mode, a close-up mode, a landscape mode and a night scene mode.

Claim 21. (Previously Presented)

The device of claim 1, wherein the search area of the image within the imaging position is determined in accordance with the predetermined conditions.

Claim 22. (Previously Presented)

The method of claim 8, further comprising determining, in accordance with the predetermined conditions, the search area of the image within the imaging position.

Claim 23. (Previously Presented)

The computer program of claim 15, wherein the search area of the image within the imaging position is determined in accordance with the predetermined conditions.

Claim 24. (New)

The device of claim 4, wherein the method of an in-focus position is defined by at least one of an auto focus condition, an auto focus set in advance and auto focus area.

Claim 25. (New)

The method of claim 11, wherein the method of an in-focus position is defined by at least one of an auto focus condition, an auto focus set in advance and auto focus area.

Claim 26. (New)

The computer program product of claim 18, wherein the method of an in-focus position is defined by at least one of an auto focus condition, an auto focus set in advance and auto focus area.